

What Is Claimed Is:

(1) A method of creating an article of manufacture, said method comprising the steps of providing a structural epoxy foam material; providing a catalyst; mixing the structural epoxy foam resin material with the catalyst, thereby
5 creating a certain mixture; creating a mold; placing the certain mixture within said created mold; and allowing the certain mixture to harden within the created mold, thereby forming the article of manufacture.

10 (2) The method of Claim 1 wherein said structural epoxy foam material comprises Terocore®.

(3) The method of Claim 2 wherein said catalyst comprises an amine catalyst.

(4) The method of Claim 3 further comprising the steps of
15 providing a source of gas; and causing at least a portion of said provided gas to be mixed with said structural epoxy foam resin material and said catalyst.

(5) The method of Claim 4 further comprising the steps of vibrating said structural epoxy foam material and said
20 catalyst as said structural foam material and said catalyst are being mixed.

(6) The method of Claim 5 further comprising the step of heating said gas.

(7) The method of Claim 6 wherein said gas comprises air.

(8) The method of claim 6 wherein said gas comprises carbon dioxide.

(9) The method of Claim 8 wherein said article of manufacture comprises a toilet bowl.

5 (10) The method of Claim 8 wherein said article of manufacture comprises a kitchen countertop.

(11) The method of Claim 8 wherein said article of manufacture comprises a sink.

(12) The method of Claim 8 wherein said article of
10 manufacture comprises an over door.

(13) A method of creating an article of manufacture, said method comprising the steps of providing a syntactic cement material; providing a catalyst; mixing said syntactic cement material with said provided catalyst, thereby
15 creating a certain mixture; creating a mold; placing said certain mixture within said created mold; and allowing said certain mixture to harden within said created mold, thereby creating said article of manufacture.

(14) The method of Claim 13 wherein said catalyst material
20 comprises water.

(15) The method of Claim 13 wherein said catalyst material comprises acrylic latex.

(16) The method of Claim 13 further comprising the steps of providing a certain amount of microsphere material; and

mixing said certain amount of said microsphere material with said syntactic cement material.

(17) The method of Claim 16 wherein said article of manufacture comprises a sink.

5 (18) The method of Claim 16 wherein said article of manufacture comprises a toilet bowl.

(19) The method of Claim 13 wherein said article of manufacture comprises a kitchen countertop.

10 (20) The method of Claim 16 wherein said article of manufacture comprises a dryer door.

(21) An apparatus for selectively forming an article of manufacture, said apparatus comprising a mold; a reservoir of a catalyst; a reservoir of a structural foam material; a pump which is physically and communicatively coupled to
15 said reservoir of structural foam material; a mixing head assembly which is physically and communicatively coupled to said pump and which includes an auxiliary input port and an output port; a source of gas which is physically and communicatively coupled to said auxiliary input port; a
20 mixing assembly which is physically and communicatively coupled to said output port of said mixing head assembly; and a controller which is controllably coupled to said pump, to said source of gas, and to said mixing assembly and wherein said controller is adapted to selectively cause

at least a portion of said reservoir of structural foam material to be communicated to said input port of said mixing head assembly while causing at least a portion of said source of gas to be communicated to said auxiliary
5 input port of said mixing head assembly , thereby causing at least said portion of said source of gas to mix with said at least said portion of said reservoir of structural foam within said mixing head assembly to form a certain material, said controller further selectively causing said
10 formed certain material to be communicated to said mixing assembly and causing said formed certain material to mix with at least a portion of said catalyst material within said mixing assembly to form a certain second material and further selectively causing at least a portion of said
15 formed certain second material to be selectively dispensed from said mixing assembly to said mold, thereby allowing said certain second material to form said article of manufacture within said mold.

(22) The apparatus of Claim 21 further comprising a
20 selectively activatable vibration assembly which is controllably coupled to said controller and which is physically coupled to said mixing head assembly and wherein said controller selectively activating said vibration assembly when said gas and said structural foam are mixed

within said mixing head assembly, thereby causing said gas and said structural foam to vibrate as they are being mixed within said mixing head assembly.

(23) The apparatus of Claim 22 wherein said gas comprises
5 air.

(24) The apparatus of Claim 22 wherein said gas comprises carbon dioxide.

(25) The apparatus of Claim 23 further comprising a selectively activatable heating assembly which is
10 controllably coupled to said controller and which is coupled to said source of gas and wherein said controller selectively activates said heating assembly to cause said gas to be heated before it is communicated to said auxiliary input port of said mixing head assembly.

15 (26) The apparatus of Claim 25 wherein said structural foam material comprises Terocore®.

(27) The apparatus of Claim 26 wherein said article of manufacture comprises a toilet bowl.

(28) The apparatus of Claim 26 wherein said article of
20 manufacture comprises a kitchen countertop.

(29) The apparatus of Claim 26 wherein said article of manufacture comprises a sink.

(30) The apparatus of Claim 26 wherein said article of manufacture comprises an oven door.

(31) The apparatus of Claim 26 wherein said article of manufacture comprises a dryer door.

(32) An apparatus for selectively forming an article of manufacture, said apparatus comprising a mold; a reservoir
5 of a catalyst; a reservoir of a syntactic cement; a pump which is physically and communicatively coupled to said reservoir of syntactic cement; a mixing head assembly which is physically and communicatively coupled to said pump and which includes an auxiliary input port and an output port;
10 a source of gas which is physically and communicatively coupled to said auxiliary input port; a mixing assembly which is physically and communicatively coupled to said output port of said mixing head assembly; and a controller which is controllably coupled to said pump, to said source
15 of gas, and to said mixing assembly and wherein said controller is adapted to selectively cause at least a portion of said reservoir of syntactic cement to be communicated to said input port of said mixing head assembly while causing at least a portion of said source of
20 gas to be communicated to said auxiliary input port of said mixing head assembly, thereby causing at least said portion of said source of gas to mix with said at least said portion of said reservoir of syntactic cement within said mixing head assembly to form a certain material, said

controller further selectively causing said formed certain material to be communicated to said mixing assembly and causing said formed certain material to mix with at least a portion of said catalyst material within said mixing assembly to form a certain second material and further selectively causing at least a portion of said formed certain second material to be selectively dispensed from said mixing assembly to said mold, thereby allowing said certain second material to form said article of manufacture within said mold.

(33) The apparatus of Claim 32 wherein said catalyst comprises water.

(34) The apparatus of Claim 33 further comprising a selectively activatable heating assembly which is controllably coupled to said controller and which is coupled to said source of gas and wherein said controller selectively activates said heating assembly to cause said gas to be heated before it is communicated to said auxiliary input port of said mixing head assembly.

(35) The apparatus of Claim 34 wherein said article of manufacture comprises a toilet bowl.

(36) The apparatus of Claim 34 wherein said article of manufacture comprises a kitchen countertop.

(37) The apparatus of Claim 34 wherein said article of manufacture comprises a sink.

(38) An article of manufacture made by the process of mixing a structural foam material with a catalyst material
5 to form a selectively mixed material; placing the selectively mixed material into a mold; and allowing the selectively mixed material to harden within the mold, thereby forming said article of manufacture.

(39) The article of manufacture of Claim 38 comprising a
10 toilet bowl.

(40) The article of manufacture of Claim 38 comprising a sink.

(41) The article of manufacture of Claim 38 comprising a counter top.

15 (42) The article of manufacture of Claim 38 wherein said structural foam material comprises Terocore®.

(43) The article of manufacture of Claim 42 wherein said catalyst material comprises an amine catalyst.

(44) The article of manufacture of Claim 43 further
20 comprising the steps of causing hot gas to be mixed with said structural foam material and said catalyst.

(45) The article of manufacture of Claim 44 further comprising the steps of causing said structural foam

material and said catalyst to be vibrated as they are selectively mixed.

(46) The article of manufacture of Claim 45 further comprising the steps of finishing the surface of said
5 hardened material.

(47) An article of manufacture made by the process of mixing a syntactic cement material with a catalyst material to form a selectively mixed material; placing the selectively mixed material into a mold; and allowing the
10 selectively mixed material to harden within the mold, thereby forming said article of manufacture.

(48) The article of manufacture of Claim 47 comprising a toilet bowl.

(49) The article of manufacture of Claim 47 comprising a
15 sink.

(50) The article of manufacture of Claim 47 comprising a counter top.

(51) The article of manufacture of Claim 47 wherein said syntactic cement material comprises cyanoacrylate pre-mixed
20 with the catalyzed water based epoxy.

(52) The article of manufacture of Claim 47 wherein said catalyst material comprises water.

(53) The article of manufacture of Claim 52 further comprising the steps of causing hot gas to be mixed with said syntactic cement material and said catalyst.

5 (54) The article of manufacture of Claim 53 further comprising the steps of causing said syntactic cement material and said catalyst to be vibrated as they are selectively mixed.

10 (55) The article of manufacture of Claim 54 further comprising the steps of finishing the surface of said hardened material.

(56) The article of manufacture of Claim 55 further comprising the steps of providing microspheres; and placing said provided microspheres within said syntactic cement.

15 (57) The article of manufacture of Claim 56 further comprising the step of selectively vibrating said mold.